

What is claimed is:

1. A mixer apparatus for mixing livestock feed and the like, said apparatus comprising:

a container for the reception therein of the feed;

said container including:

a housing;

a wall extending away from said housing, said wall defining an opening disposed remote from said housing for the reception therethrough of the feed, the arrangement being such that said housing and said wall define therebetween an enclosure for the feed received through said opening;

an auger disposed within said enclosure, said auger having an axis of rotation extending through said housing;

said auger including:

a core;

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flighting connected to said core so that when said auger rotates, feed disposed within said enclosure is mixed;

said flighting including:

a first portion; and

a second portion staggered relative to said first portion such that movement of the feed between said first and second portions is interrupted.

2. A mixer apparatus as set forth in claim 1 further including:

a final driven wheel disposed within said housing, said final driven wheel being rotatable about said axis of rotation, said final driven wheel being drivingly connected to said auger so that when said final driven wheel is rotated within said housing, said auger is rotated therewith within said enclosure for mixing the feed;

said final driven wheel and said auger together as a unit being removable and replaceable relative to said housing and enclosure respectively, the arrangement being such that when said final driven wheel and said auger are together as said unit removed, direct access to said final driven wheel is permitted.

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3. A mixer apparatus as set forth in claim 1 wherein

said container further includes:

5 a frame for supporting said housing thereon.

4. A mixer apparatus as set forth in claim 3 wherein

said container further includes:

a plurality of wheels rotatably secured to said frame for permitting transportation of said mixer apparatus.

5. A mixer apparatus as set forth in claim 4 wherein

said container further includes:

a hitch bar secured to said frame for facilitating transportation of said mixer apparatus by a tractor or the like.

6. A mixer apparatus as set forth in claim 2 wherein

said housing includes:

a base;

- 5 a rim having a first and a second end, said first end of said rim being secured to said base;

a floor disposed between said auger and said final driven wheel, said floor being secured to said second end of said rim such that said base, said rim and said floor define therebetween an encasement for said final driven wheel.

7. A mixer apparatus as set forth in claim 6 wherein

said floor defines an access hole for permitting removal and replacement therethrough of said final driven wheel.

8. A mixer apparatus as set forth in claim 7 wherein

said floor includes:

- 20 a cover for covering said access hole, said cover defining an aperture through which said axis of rotation extends so that driving of said auger by said final driven wheel is permitted.

9. A mixer apparatus as set forth in claim 8 wherein

said cover includes:

5 a bearing extending through said aperture, said bearing being disposed between said auger and said final driven wheel for bearingly supporting said auger and said final driven wheel for permitting rotation of said auger and said final driven wheel when said final driven wheel is being driven.

10. A mixer apparatus as set forth in claim 8 wherein

said floor defines an array of bores disposed around said access hole;

said cover having a peripheral edge which defines a plurality of holes;

15 a plurality of fasteners, each fastener extending through a hole of said plurality of holes and an aligned bore of said array of bores for removably fastening said cover to said floor.

11. A mixer apparatus as set forth in claim 6 wherein

said encasement is filled with lubricant for lubricating said final driven wheel.

12. A mixer apparatus as set forth in claim 1 wherein

said wall extends angularly away from said housing.

13. A mixer apparatus as set forth in claim 1 wherein

5 said wall defines a discharge outlet for the discharge therethrough of the feed.

14. A mixer apparatus as set forth in claim 13 wherein

said discharge outlet includes:

a door.

15. A mixer apparatus as set forth in claim 13 wherein

15 said discharge outlet includes:

a door;

at least one expeller disposed adjacent to said door for moving the feed away from said enclosure.

16. A mixer apparatus as set forth in claim 13 wherein

said discharge outlet includes:

a door;

5 a conveyor disposed adjacent to said door for conveying the feed away from said enclosure.

17. A mixer apparatus as set forth in claim 1 wherein

said flighting is disposed helically around said core.

18. A mixer apparatus as set forth in claim 17 wherein

said core is of cylindrical configuration.

15 19. A mixer apparatus as set forth in claim 17 wherein

said core is of conical configuration.

20. A mixer apparatus as set forth in claim 17 wherein

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said first portion overlaps said second portion.

21. A mixer apparatus as set forth in claim 20 wherein

said first portion has a first and a second end, said first end being disposed adjacent to said housing;

5 said second portion has a first and a second extremity, said first extremity being disposed in an adjacent spaced relationship relative to said second end of said first portion.

22. A mixer apparatus as set forth in claim 20 wherein

said first portion is a paddle;

said second portion is a further paddle.

23. A mixer apparatus as set forth in claim 1 wherein

said first portion and said second portion are disposed generally parallel relative to each other.

24. A mixer apparatus as set forth in claim 1 wherein

20 said first portion and said second portion diverge relative to each other.

25 A mixer apparatus as set forth in claim 19 wherein

said flighting has an inner edge and an outer edge, said inner edge being connected to said core, said outer edge being canted towards said housing such that discharging and cleaning of feed from said auger during an unloading operation is facilitated.

5 26 A mixer apparatus as set forth in claim 2 wherein

said final driven wheel is a gear wheel.

27. A mixer apparatus as set forth in claim 26 wherein

said gear wheel includes:

a plurality of straight teeth.

15 28. A mixer apparatus as set forth in claim 26 wherein

said gear wheel has a diameter of at least three foot.

29. A mixer apparatus as set forth in claim 2 wherein

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said final driven wheel is a driven sprocket wheel.

30. A mixer apparatus as set forth in claim 2 further including:

a drive wheel having a further axis of rotation which is disposed spaced and approximately parallel relative to said axis of rotation of said auger, said drive wheel driving said final driven wheel.

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31. A mixer apparatus as set forth in claim 30 wherein

said drive wheel is a drive gear pinion;

said drive gear pinion having a plurality of teeth;

said final driven wheel is a gear wheel having gear teeth which intermesh with said plurality of teeth of said drive gear pinion so that when said drive gear pinion is rotated, said final driven wheel and said auger are rotated.

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32. A mixer apparatus as set forth in claim 30 wherein

said drive wheel is a drive gear pinion;

20 said drive gear pinion having a plurality of teeth;

said final driven wheel is a gear wheel having gear teeth which intermesh with said plurality of teeth

of said drive gear pinion so that when said drive gear pinion is rotated, said final driven wheel and auger are rotated;

said housing including:

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a base;

a rim having a first and a second end, said first end of said rim being secured to said base;

a floor disposed between said auger and said final driven wheel, said floor being secured to said second end of said rim such that said base, said rim and said floor define therebetween an encasement for said final driven wheel;

said floor and said base further defining a cavity for the reception therein of said drive gear pinion.

33. A mixer apparatus as set forth in claim 32 further including:

a drive gear pinion bearing secured to said housing for rotatably supporting said drive gear pinion within said cavity;

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a drive shaft secured to said drive gear pinion, said drive shaft extending through said housing so that when said drive shaft is rotated, said drive gear pinion, said final driven wheel and said auger

are rotated.

34. A mixer apparatus as set forth in claim 31 further including:

5 a guide disposed in a vicinity of said plurality of teeth of said drive gear pinion and said gear teeth of said final driven wheel, the arrangement being such that when said plurality of teeth intermesh with said gear teeth of said final driven wheel, said intermeshing teeth are guided into an intermeshing relationship by said guide.

10 35. A mixer apparatus as set forth in claim 34 wherein

said guide is secured to said drive gear pinion and is disposed between said drive gear pinion and said base.

15 36. A mixer apparatus as set forth in claim 1 further including:

a further auger disposed within said enclosure, said further auger having a rotational axis disposed approximately parallel to and spaced from said axis of rotation of said auger;

20 a drive wheel common to said auger and said further auger, said drive wheel having a further axis of rotation which is disposed spaced and approximately parallel relative to said axis of rotation of said auger and said rotational axis of said further auger.

37. A mixer apparatus as set forth in claim 36 wherein

said further axis of rotation of said drive wheel is disposed between said axis of rotation of said auger and said rotational axis of said further auger.

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38. A mixer apparatus as set forth in claim 36 wherein

said axis of rotation of said auger is disposed between said further axis of rotation of said drive wheel and said rotational axis of said further auger.

39. A mixer apparatus as set forth in claim 36 wherein

said drive wheel is a drive gear pinion;

said drive gear pinion having a plurality of teeth;

said final driven wheel being a gear wheel having gear teeth which intermesh with said plurality of teeth of said drive gear pinion so that when said drive gear pinion is rotated, said final driven wheel and auger are rotated;

said mixer apparatus further including:

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40. A mixer apparatus as set forth in claim 29 wherein

said drive wheel is a first drive sprocket;

said mixer apparatus further including:

a second drive sprocket secured to said first drive sprocket and disposed coaxially relative to said first drive sprocket;

15 a drive extending around said first drive sprocket and said final driven wheel so that when said first drive sprocket is rotated, said drive rotates said final driven wheel;

a further final driven wheel, said further final driven wheel being a further driven sprocket wheel;

20 a further drive extending around said second drive sprocket and said further final driven wheel so that when said second drive sprocket is rotated, said further drive rotates said further final driven wheel.

41. A mixer apparatus as set forth in claim 40 wherein

said drive is a first roller chain drive;

5 said further drive is a second roller chain drive.

42 A mixer apparatus as set forth in claim 4 wherein

said plurality of wheels includes:

a first wheel;

a second wheel disposed spaced and coaxial relative to said first wheel;

15 a first load cell disposed between said first wheel and said frame;

a second load cell disposed between said second wheel and said frame;

a third load cell having a first and a second end, said first end of said third load cell being secured
20 to said frame;

a clevis attached to said second end of said third load cell, said clevis being rotatable about a

longitudinal axis of said third load cell and a tractor drawbar attached to said clevis, the arrangement being such that during a weighing operation which is dependent on measurements from said first, second and third load cells, said rotatable clevis connecting to the tractor.

5 43 A mixer apparatus as set forth in claim 1 wherein
a helical path followed by said second portion is spaced relative to a further helical path that would continue from said first portion .

44. A mixer apparatus as set forth in claim 1 wherein
said container is truck mounted.

45. A mixer apparatus for mixing livestock feed and the like, said apparatus comprising:

a container for the reception therein of the feed;

said container including:

a housing;

20 a wall extending away from said housing, said wall defining an opening disposed remote from said housing for the reception therethrough of the feed, the arrangement being such that said housing and said wall define therebetween an enclosure for the feed received through said opening;

said auger including:

fighting connected to said core so that when said auger rotates, feed disposed within said enclosure is mixed;

a first portion;

a second portion staggered relative to said first portion such that movement of the feed between said first and second portions is interrupted;

a final driven wheel disposed within said housing, said final driven wheel being rotatable about said axis of rotation, said final driven wheel being drivingly connected to said auger so that when said final driven wheel is rotated within said housing, said auger is rotated therewith within said enclosure for mixing the feed;

said final driven wheel and said auger together as a unit being removable and replaceable relative to said housing and enclosure respectively, the arrangement being such that when said final driven wheel and said auger are together as said unit removed, direct access to said final driven wheel is permitted;

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said final driven wheel being a driven pulley wheel.

said drive wheel being a first drive pulley;

said mixer apparatus further including:

a second drive pulley secured to said first drive pulley and disposed coaxially relative to said first drive pulley;

a drive extending around said first drive pulley and said final driven wheel so that when said first drive pulley is rotated, said drive rotates said final driven wheel;

a further final driven wheel, said further final driven wheel being a further driven pulley wheel;

a further drive extending around said second drive pulley and said further final driven wheel so that when said second drive pulley is rotated, said further drive rotates said further final driven wheel.

said drive being a first belt drive; and

53 said further drive being a second belt drive.